

What we claim is:

1. A balloon catheter having a distal region and a proximal region, comprising:

an elongate shaft extending from the distal region to the proximal region and defining a working lumen therebetween, the elongate shaft having an inner and an outer surface;

an inflatable compliant balloon disposed about a portion of the distal region of the outer surface of the elongate shaft such that the shaft extends through the balloon; and

an external inflation component having an inflation lumen in fluid communication with the balloon; wherein the external inflation component is disposed longitudinally along the outer surface of the elongate shaft.

2. The catheter of claim 1, wherein the external inflation component extends from the proximal region of the shaft to the balloon, the inflation component having a distal end disposed within the balloon.

3. The catheter of claim 2, wherein the inflation component is a hypotube.

4. The catheter of claim 3, wherein a distal region of the inflation component comprises a polymer tube.

5. The catheter of claim 4, wherein the polymer tube is a reinforced braided polymer tube.

6. The catheter of claim 2, wherein the inflation component is made of an elastic material.
7. The catheter of claim 3, wherein the hypotube is made of nitinol.
8. The catheter of claim 1, wherein the inflation lumen has a smaller diameter than a diameter of the shaft.
9. The catheter of claim 1, wherein the inflation component is attached to the outer surface of the shaft by shrinking a thin wall of polymer around the inflation component and shaft.
10. The catheter of claim 1, wherein the inflation component is attached to the outer surface of the shaft by an adhesive.
11. The catheter of claim 1, wherein the inflation component is attached to the outer surface of the shaft by a thermal bond.
12. The catheter of claim 1, wherein the balloon is made of silicone, urethane, or poly-isoprene.
13. The catheter of claim 1, wherein the shaft comprises an internal metal braid.

14. The catheter of claim 1, wherein the shaft comprises an internal metal coil.
15. The catheter of claim 1, wherein a proximal end of the inflation component comprises a sealing member configured to reversibly seal the inflation lumen.
16. The catheter of claim 15, wherein the sealing member is a valve.
17. The catheter of claim 1, wherein the inflation component is a sleeve disposed about the shaft, wherein the sleeve extends from the proximal region of the shaft to proximal of the distal end of the shaft, wherein the sleeve is spaced from the shaft, creating an annular inflation lumen in fluid communication with the balloon.
18. The catheter of claim 17, wherein a distal end of the balloon is attached to the distal region of the shaft and a proximal end of the balloon is attached to a distal end of the sleeve.
19. The catheter of claim 18, wherein the sleeve is a single layer polymer, the sleeve being attached to an inflation hub at a proximal end of the sleeve.
20. The catheter of claim 17, wherein the annular inflation lumen has a diameter of about 0.002 inches at the distal end of the sleeve.

21. The catheter of claim 17, wherein the annular inflation lumen has a diameter of about 0.004 inches at a proximal end of the sleeve.

22. The catheter of claim 17, wherein a thickness of the sleeve tapers toward the distal end while a diameter of the working lumen remains constant throughout a length of the shaft, resulting in a catheter with a tapered distal region.

23. The catheter of claim 17, wherein a diameter of the working lumen tapers towards the distal end while a thickness of the sleeve remains constant, resulting in a catheter with a tapered distal region.

24. A guide catheter assembly comprising:
an elongate shaft having distal and proximal ends;
a working lumen extending from the distal end to the proximal end;
an inflatable compliant balloon disposed about the shaft proximal of the distal end; and

an external inflation component having an inflation lumen, the external inflation component extending longitudinally along and attached to an outer surface of the shaft;

wherein a distal end of the balloon is attached to the outer surface of the shaft and a proximal end of the balloon is attached to the outer surface of the shaft and a distal end of the external inflation component, wherein the inflation lumen is in fluid communication with an interior of the balloon.

25. A guide catheter assembly comprising:

- an elongate shaft having distal and proximal ends;
- a working lumen extending from the distal end to the proximal end;
- an inflatable compliant balloon disposed about the shaft proximal of the distal end; and
- an external inflation component having an inflation lumen, the external inflation component extending longitudinally along and attached to an outer surface of the shaft;

wherein a distal end of the balloon is attached to the outer surface of the shaft and a proximal end of the balloon is attached to a distal end of the external inflation component, wherein the inflation lumen is in fluid communication with an interior of the balloon.